OTHER HAZARDOUS MATERIALS

POLYCHLORINATED BIPHENYLS (PCB's) LIGHT BALLAST HANDLING PROCEDURES

The Contractor may be instructed to remove light fixtures which contain light ballasts during demolition/ renovation activities specified in the contract documents. These light ballasts typically contain PCBs in the oil used as coolant and lubricant. Any ballast containing PCBs is to be considered a"Hazardous Waste", and the Contractor is responsible for ensuring personnel who perform PCB related work (inspection, removal, clean-up) are trained and qualified to do so. All workers must also follow current OSHA regulations including 29 CFR 1910.120 and 8 CCR 5192, as well as other applicable federal, state and local laws and regulations.

PCB Light Ballasts

All light ballasts manufactured through 1978 are magnetic ballasts which contain PCBs. Installation of ballasts manufactured prior to 1978 continued for several more years. As a result it can be expected that any building constructed before 1980 which has not had a complete lighting retrofit is likely to have PCB containing ballasts. Therefore, unless the ballast is electronic (this type is PCB free), determined by testing not to contain PCBs, or the manufacturers label on the ballast states "No PCBs", it is assumed all light ballasts on this site contain PCB's, and must therefore be handled as a hazardous waste by the Contractor. The Contractor may have other options for disposal of any light ballasts found not to contain PCB's.

Light Ballast Inspection

Contractor should disconnect all power and de-energize all electrical equipment to be impacted prior to performing inspection of electrical devices scheduled for removal or replacement. This de-energizing should be performed by or under the supervision of a licensed electrician. Contractor shall inspect each ballast prior to its removal to determine if the ballast is leaking, if oily residue is present on the exterior of the ballast or the ballast has been damaged resulting in a leak. Upon discovering and prior to removal of any oil coated, leaking, or damaged ballast Contractor shall contact Owners representative to discuss work procedures, waste requirements, etc.

Handling Work Practices of Undamaged Light Ballasts

Handling of ballasts shall be consistent with existing ballast conditions. While a ballast may not initially indicate any damage or leakage to be present, it may become damaged or begin to leak for any number of reasons during the removal and handling process. Any skin contact will probably constitute overexposure to PCBs since they are easily absorbed through the skin. It is recommended any personnel who will perform PCB related work should at a minimum wear protective clothing, including chemically-resistant gloves, goggles, boots, and disposable coveralls.

Handling Work Practices of Damaged Light Ballasts

Handling of damaged ballasts shall be performed in a manner consistent with existing and current federal, state and local laws and regulations. Clean-up of spills, or contaminated surfaces will require the use of specifically trained and properly protected personnel utilizing state of the art work practices, removal equipment, and materials. The Owners representative must be notified prior to the performance of this type of work.

PCB Containing Waste

All PCB containing light ballasts, removed by the Contractor, shall be placed in leak tight approved containers (metal barrels) until they are removed from the site by a waste transporter permitted to haul hazardous materials. Barrels must not be loaded in excess of their approved capacity. For most barrels this is 750 pounds. No other materials except, a sufficient amount of absorbent packing material, shall be included with the light ballasts.

The Contractor should contact their waste hauler prior to the start of work for information pertaining to recommendations or the waste haulers stated requirements for packing PCB containing ballasts. However, at a minimum, the absorbent packing material should be added to the bottom of the waste barrel prior to the first ballast. Absorbent packing material should then be added intermittently as necessary to encase the ballasts as the waste barrel is being filled. When the waste barrel is filled, or no more light ballasts will be added, additional absorbent packing material should be added to completely cover the ballasts and the container then sealed.

Contractor is also responsible for appropriate labeling of waste barrels and securing of lids to meet federal and/or state requirements while being stored on the site.

All leaking or damaged ballasts must be handled in accordance with federal and state disposal requirements and shall be separated from undamaged ballasts in preparation for incineration at an appropriately licensed facility.

The Contractor is responsible for all costs associated with the removal, packing, loading, shipping, and disposal of each barrel of waste generated during this project. The Contractor is also responsible for obtaining and properly completing any Uniform Hazardous Waste Manifests needed for the disposal of PCB waste. However, the Contractor **SHALL NOT** sign any Uniform Hazardous Waste Manifests for the Owner.

Non-PCB Light Ballasts

Non-PCB light ballasts are considered a hazardous waste in California and the contractor is responsible for collection, packaging, labeling, and holding this waste stream for proper disposal. Non-PCB light ballasts shall be shipped for disposal or recycle by the Contractor.

UNIVERSAL WASTE LAMP HANDLING PROCEDURES

The Contractor may be instructed to remove light fixtures which contain lamps which are designated as “Universal Waste” during demolition/renovation activities specified in the contract documents. If the Contractor is instructed to remove such fixtures the following handling procedures shall be followed.

Universal Wastes

Universal wastes are hazardous wastes that are more common and pose a lower risk to people and the environment than other hazardous wastes. Federal and State regulations identify universal wastes. The regulations, called the “Universal Waste Rule,” are in the California Code of Regulations (CCR), title 22, division 4.5, chapter 23.

Universal Waste Lamps

Universal Waste Lamp, also referred to as "lamp" is defined as the bulb or tube portion of an electric lighting device. A lamp is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infra-red regions of the electromagnetic spectrum. Examples of common universal waste electric lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps. Any lamp which is not spent and has been designated to be reused is not classified as a waste and does not meet the requirements of a hazardous waste or a universal waste.

Mercury-added lamps

Mercury-added lamps (effective February 9, 2004): Fluorescent tubes and several other types of lamps (not incandescent light bulbs) contain a small amount of mercury that is necessary for their operation. Currently, most fluorescent lamps contain enough mercury to be a hazardous waste.

Universal Waste Lamp Disposal

Spent lamps typically contain concentrations of mercury exceeding the established Total Threshold Limit Concentration and/or the Soluble Threshold Limit Concentration values. Therefore, these lamps must be sent to an authorized recycle facility, or to a universal waste consolidator for shipment to an authorized recycling facility.

At a minimum the lamps must be packaged in boxes/packages/containers which are structurally sound, adequate to prevent breakage, and compatible with the content of the lamps. These packages must remain closed and be free of damage which could cause leakage under reasonably foreseeable conditions.

Each container shall be labeled or marked clearly with one of the following phrases: "Universal Waste–Lamp(s)," or "Waste Lamp(s)." or "Used Lamp(s)".

Documentation in the form of a log, invoice, manifest, bill of lading or other shipping document is required to be submitted to the Owner's Representative for each shipment of waste from the project site. This documentation shall include: name and address of generator and address of site waste is generated on, quantity of lamps to be shipped, date of shipment, name and address of hauler, and name and address of waste facility receiving the waste.

Hazardous Waste Designation

Any lamp which is not designated for recycling or continued use in a different fixture for which the lamp is manufactured for use in must be handled, managed, and disposed of as a hazardous waste in accordance with Cal/EPA Title 22. Since all spent lamps are required to be recycled the Owner will not approve of the disposal of lamps as hazardous without consultation and review of the specific circumstances which warrant this change in designation.

MERCURY SWITCHES

Thermostat switches that contain mercury are considered a hazardous waste if removed and disposed. Where the contract requires removal of thermostat switches, the contractor shall follow all requirements for packaging and disposal of these mercury containing wastes.

SMOKE DETECTORS WHICH MAY CONTAIN A RADIOACTIVE ELEMENT

The Contractor shall be responsible for the removal of any and all smoke detectors which may contain a radioactive element, which may be present in any building or corridor prior to the demolition of any building included in this project. These types of detectors are easily identified by reviewing the label which is usually found on the back of the detector. Older units may display the international radiation symbol (three bladed propeller) and the radioactive content. Newer units state the radioactive content and their Nuclear Regulatory Agency (NRC) license number.

The Contractor shall be responsible for contacting the manufacturer of any smoke detector with a radioactive element present to determine their return policies. The California Department of Toxic Substance Control (DTSC) has stated that it is a condition of the manufacturers NRC license that they must accept returned units for disposal. The Contractor shall be responsible for all costs associated with removing, packaging, and shipping of the detectors in compliance with the manufacturers policies and procedures.

Contractor shall submit to the Owner a letter from the manufacturer which includes the number of units received, date received, and acceptance of the shipment for disposal by that manufacturer.

Additional Waste Management Requirements

The Contractor is responsible for managing lamps in a manner which prevents release of any universal waste or component of a universal waste to the environment. The Contractor is also responsible for the immediate clean up of materials (mercury or other hazardous constituents) released by a lamp broken during removal or otherwise damaged while being handled into a container or containers designed to accommodate the resulting waste and its contents.

The Contractor is responsible for training employees in proper handling, packaging, storing and labeling the universal waste, as well as, how to respond to releases (66273.13). This may be accomplished by providing employees written instructions or posting these instructions in the area where the universal waste lamps are being stored.

The Contractor is responsible for all costs associated with the removal, packing, loading, shipping, clean up and disposal of hazardous materials removed during this project, and any waste generated due to breakage during this project. The Contractor is also responsible for obtaining and properly completing any Uniform Hazardous Waste Manifests needed for the disposal of lamp waste. However, the Contractor **SHALL NOT** sign any Uniform Hazardous Waste Manifests for the Owner.

It **SHALL** be the responsibility of the Contractor to contact the Owner in advance of the scheduled pick up time and date so the waste materials can be visually inspected for proper packing, and to have the Uniform Hazardous Waste Manifest properly signed by a Owner representative.

MOLD CONTAMINATED BUILDING MATERIALS

During the course of conducting the construction related project, the contractor may discover water damaged building components which may also have visible or suspect mold on building materials. Mold can be harmful to humans depending upon the amount of exposure and type of exposure; therefore, it is incumbent of the contractor to take precautions in the event of the discovery of mold contaminated building materials.

If mold contaminated building materials are discovered on the project, it should be brought to the attention of the project manager. In addition, any structural wood members should also be closely examined for possible dry rot and decay and brought to the attention of the project manager. Precautions should be implemented by the contractor to protect his/her employees from exposures to mold from both skin contact and inhalation exposures. Employees should be trained in accordance with the Cal/OSHA Hazard Communication Standard for mold hazards.

If this project involves asbestos related work, the work practices and worker protection for asbestos is very similar to mold related work. Workers performing asbestos related demolition of building components are required to be protected in accordance with Cal/OSHA Title 8 1529 Asbestos in Construction regulations. Workers performing asbestos related work are required to wear respirators with P-100 (HEPA) filters, and whole body disposable coveralls while removing the building materials within negative pressure HEPA filtered work enclosures. These same asbestos work practices defined in Title 8 1529 and in other specifications for this project shall apply to any mold contaminated building materials.

Any mold contaminated building materials shall be removed from the work environment in sealed bags. If the building materials have been determined to contain asbestos, the default criteria for handing, packaging, labeling, and disposal of the waste material shall be the Cal/OSHA, Federal EPA, and D.O.T. regulations for asbestos waste. If the mold impacted materials have been determined not to contain asbestos, the materials shall be placed in sealed six mil plastic bags and can be disposed as non-hazardous waste. If the mold impacted building components are painted, lead in the paint may be the determinant for disposal. Refer to the Lead in Construction specifications for handling of painted components for lead waste issues.

FREON

All refrigerant systems at the buildings containing Freon and other fluorocarbon products associated with heating, ventilating, and air-conditioning (HVAC) systems, or freezers, refrigerators, etc. if removed in the planned renovation or demolition project, shall be removed from the mechanical systems and recycled in accordance with Cal/EPA requirements.

CRYSTALLINE SILICA

Cal/OSHA Title 8 1532.3. Occupational Exposures to Respirable Crystalline Silica require all employers to control employee exposures to silica dust during construction related activities. The contractor is responsible for following all of the requirements in the silica regulations established by Cal/OSHA in Title 8 section 1532.3. Below are some of the key components related to engineering controls specific to different tasks. Below are excepts from the silica standards; however, the contractor shall familiarize themselves with all of the requirements in this regulation.

(C) Specified exposure control methods. (1) For each employee engaged in a task identified on Table 1, the employer shall fully and properly implement the engineering controls, work practices, and respiratory protection specified for the task on Table 1, unless the employer assesses and limits the exposure of the employee to respirable crystalline silica in accordance with subsection (d).

All employers shall refer to “Table 1 - Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica” which identify the specific Equipment/Task, required Engineering and Work Practice Control Methods, and the required respiratory protection based on number of hours for the specific tasks. The contractor shall implement at least one of the work practices and control measures for the work activity they chose to implement.

(3) Where an employee performs more than one task on Table 1 during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.

(2) When implementing the control measures specified in Table 1, each employer shall:

(A) For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;

(B) For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;

(C) For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:

1. Is maintained as free as practicable from settled dust;
2. Has door seals and closing mechanisms that work properly;
3. Has gaskets and seals that are in good condition and working properly;
4. Is under positive pressure maintained through continuous delivery of fresh air;
5. Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 μm range (e.g., MERV-16 or better); and
6. Has heating and cooling capabilities.

(d) Alternative exposure control methods. For tasks not listed in Table 1, or where the employer does not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1:

(1) Permissible exposure limit (PEL). The employer shall ensure that no employee is exposed to an airborne concentration of respirable crystalline silica in excess of 50 $\mu g/m^3$, calculated as an 8-hour TWA.

(2) Exposure assessment.

(A) General. The employer shall assess the exposure of each employee who is or may reasonably be expected to be exposed to respirable crystalline silica at or above the action level in accordance with either the performance option in subsection (d)(2)(B) or the scheduled monitoring option in subsection (d)(2)(C).

(B) Performance option. The employer shall assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to respirable crystalline silica.

(C) Scheduled monitoring option.

1. The employer shall perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, in each work area. Where several employees perform the same tasks on the same shift and in the same work area, the employer may sample a representative fraction of these employees in order to meet this requirement. In representative sampling, the employer shall sample the employee(s) who are expected to have the highest exposure to respirable crystalline silica.

2. If initial monitoring indicates that employee exposures are below the action level, the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

3. Where the most recent exposure monitoring indicates that employee exposures are at or above the action level but at or below the PEL, the employer shall repeat such monitoring within six months of the most recent monitoring.

4. Where the most recent exposure monitoring indicates that employee exposures are above the PEL, the employer shall repeat such monitoring within three months of the most recent monitoring.

5. Where the most recent (non-initial) exposure monitoring indicates that employee exposures are below the action level, the employer shall repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken seven or more days apart, are below the action level, at which time the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring, except as otherwise provided in subsection (d)(2)(D).

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June 24, 2022

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